PROJECT NUMBER: 1740
PROJECT TITLE : Flavor Components of Tobacco and Filler
PROJECT LEADER: C. S. Kroustalis
PERIOD COVERED: August, 1984

I. FLAVORS

A. The major glycoside peak from fraction HF-15' was trapped using a 50cm x 9.4mm reversed phase Magnum HPLC column. FAB/MS (Dr. Einolf) gave the glycoside, aglycone and glucose molecular weights. Enzymatic hydrolysis of the glycoside yielded the aglycone which was identified by GC/MS as 3-oxo-α-ionol.

B. Cigarettes treated with sec-butylmalonic acid and disodium sec-butylmalonate were analyzed for percent transfer of β-methylvaleric acid to mainstream TPM. Percent transfer was ≈3% for both compounds. β-methylvaleric acid deliveries were 41 and 28 µg/cigarette from available calculated β-methylvaleric acid concentrations of 1285 and 890 µg/cigarette, respectively. A report is in preparation.

C. A series of block chocolate samples from several suppliers are currently analyzed to determine the concentration of theobromine. This is in response to low theobromine concentration in block chocolate used by Manufacturing.

D. Two CF substitute flavors were analyzed for Operations Services to determine whether CF was present. No CF was found.

E. Two full experiments (~100 samples) of biotransformed ionones were profiled during this month.

II. CURING STUDIES

Two flue-curing cycles from Dr. Teng's curing "Barn" have been sampled for headspace volatiles and one for steam distillates and cuticular components. Headspace samples were generally low in volatiles. Estimated total volatiles from ~60 pounds of cured weight bright tobacco were 300-400 µg/cubic meter of headspace. During the early stages of curing (2-3 days), only volatile components were present. As the "barn" temperature increased above 45°C, the volatile compounds decreased while nicotine and higher boiling compounds increased in concentration. Steam distillates also showed changing patterns during the curing cycle. Of the cuticular compounds only the hydrocarbons (C_{25}-C_{33}) remained relatively unchanged. Alcohols (C_{18}-C_{22}) appear to increase for a time during the cycle followed by a decrease in concentration in the cured tobacco. α&β-4,8,13-duvatriene-1,3-diol changes were similar to straight chain alcohols except that their concentration decreased drastically in the cured sample. Steam distillates and headspace samples will be submitted for GC/MS identification.

III. OTHERS

A. Volatile fatty acids were determined in RL samples with an off-taste to pinpoint the RL production date of the hogsheads in question. Volatile

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fatty acids were also determined in samples from Dr. Teng's aging studies.

B. Rutin and chlorogenic acid were determined in Ecuadorian black tobacco competitive cigarettes. Rutin and chlorogenic acid were used as indicators of bright tobacco in the blend.

C. Assistance was provided in sampling and ion chromatography chloride determination from the CGI North Carolina field.

D. Residual ethanol was determined in foil-applied menthol and control cigarettes.

E. Several customer complaint cigarettes were analyzed. Two major contaminants were present: 1) Merit cigarettes from two different locations contained isomers of dimethyl or ethyl phenylmethyl benzene (identified by J. Naworal); 2) Merit and B&H Ultralights were contaminated with tax stamp ink solvents.

IV. MEMO

C. S. Kroustalis to R. Carpenter, "Marlboro K. S. (CC #27-84)", August 28, 1984.

C. S. Kroustalis

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